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Opinion Article

Advancements and Challenges of Marine Aquaculture

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DESCRIPTION

Aquaculture is the farming of aquatic animals like fish, mollusks, crustaceans, and plants. In order to increase productivity, farming usually involves some type of intervention, such as frequent stocking, feeding, predator protection, etc. Moreover, farming involves the planning, development, and management of aquaculture sites, facilities, and procedures, as well as the production and transportation of the livestock being grown. Aquaculture has been practiced for thousands of years and has slowly evolved thanks to farmers' curiosity, demands, successes, and mistakes as well as their cooperation. Because of its integration with its environmental, social, economic, and cultural contexts, it has been growing for ages. Science has advanced significantly in the twentieth and twenty-first centuries, which has benefitted aquaculture. Aquaculture now provides more than half of the world's fish for human consumption as a result of the increase that has occurred.

Aquaculture can be divided into two basic categories: freshwater and marine. The majority of National Oceanic and Atmospheric Administration (NOAA) efforts are directed towards marine aquaculture, which is the farming of marine and estuarine-dwelling organisms. There have, however, also been negative environmental effects on a local, regional, and international scale. The degradation of crucial ecosystem services is one of these negative outcomes, as are social disputes between users of land and aquatic resources. In addition, recent aquaculture projects have sparked debate and concern in society, particularly in regards to: poor site selection; habitat destruction the use of hazardous chemicals and veterinary drugs; the impact of escapees on wild stocks; ineffective or unsustainable production of fishmeal and fish oil; and social and cultural impacts on aquaculture workers and communities.

The fisheries and aquaculture division has created specific sections on aquaculture where users can consult pertinent information on aquaculture at the international, regional, and national level in order to give easily available and up-to-date information. The fisheries department's inland water resources and aquaculture service created the five training manuals on simple methods for aquaculture and the handbook on small-scale freshwater fish farming that are included on this compact disc. These user-friendly publications concentrate on the practical elements of semi-intensive freshwater fish culture, covering everything from site selection and fish farm building to fish raising, final harvesting, and marketing. They are primarily designed to assist teachers, technicians, and extension agents in explaining to small-scale farmers in developing nations the practical aspects of freshwater fish farming.

Aquaculture refers to various farming practices that use and produce a wide range of animal and plant species in inland, coastal, and marine environments. Local species are typically preferred, while introduced (or alien) species can have a substantial negative social and economic impact. The basis for all species, stocks, and genetically enhanced strains is genetic resources. A number of significant species still rely on the acquisition of seed or brood stock from wild populations for their cultivation. Aquaculture may be a very efficient use of resources because it produces a lot more food per hectare than farming or raising cattle. With growth rates exceeding 30% annually, the production of aqua feed resources is one of the agricultural sectors with the fastest rate of expansion in the world. When compared to the production of meat from terrestrial farm animals, the industry has grown more than three times quicker thanks to the availability and usage of resources.

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